81-IN5236-06154 WARRIOR 2 & 4

WS2(T/C)-XXXX / WS4-XXXX

REVISION DATE: 02-02-2009

MOOG Videolarm

PRODUCT INSTRUCTIONS

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CABLE AND POWER GUIDELINES

(Detailed info on Page 12)

This chart shows the proper current needed for power supplies for Warrior Series cameras. Use Class 2 Power only. Output voltage must be between 12-28 VDC or 15-28 VAC.

VOLTAGE	CURRENT	POWER
12 VDC	350mA	4.2W
24 VAC	202mA	4.8W

Depending on the voltage being used, refer to one of the formulas below to select the correct power supply for cameras connected in parallel (positive to positive, negative to negative):

Total current for a 12 VDC system:
TOTAL CURRENT = (350mA x total number of cameras)

Total current for a 24 VAC system:
TOTAL CURRENT = (202mA x total number of cameras)

INSTALLATION PREPARATION

1. Determine the mounting location. Be sure that you'll be mounting to a secure wall or ceiling. We also recommend that for outdoor applications the housing be mounted in a protected area.

2. Complete all wire and conduit runs prior to installation.

3. The WS2 and WS4 are designed to be mounted in a standard deep double-gang box.

4. IMPORTANT REMINDER: For outdoor applications it is strongly recommended that you use sealant. Place a light bead of sealant around the perimeter of the back of the housing and around the head of each screw connecting the housing to the double-gang box.

INSTALLATION PROCEDURE

1. Mount a double-gang box (not provided) using standard procedures. Pull power and video wires through the gang box.

2. Using the security tool provided, loosen the four security fasteners and remove the housing top.
   NOTE: The housing top is held to the base by a lanyard.

3. Remove the bracket assembly by removing the (2) 10-32 screws (Figure 1).
   NOTE: The camera is connected to the power board. Be careful not to pull the wire loose.

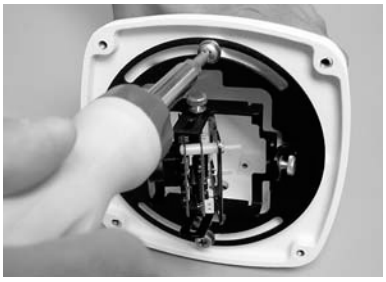

Figure 1

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WIRING (Figure 2)

Use Class 2 Power only. Input voltage must be between 12-28 VDC or 15-28 VAC.

1. Connect the output of your Class 2 Power Supply to the terminal connectors on the PC Board inside the housing. Refer to the Troubleshooting section later in this instruction sheet for more information.

2. Connect the incoming video cable to the BNC connector.

   NOTE: For NVT Twisted Pair see Addendum 1, for IFS Fiber see Addendum 2.

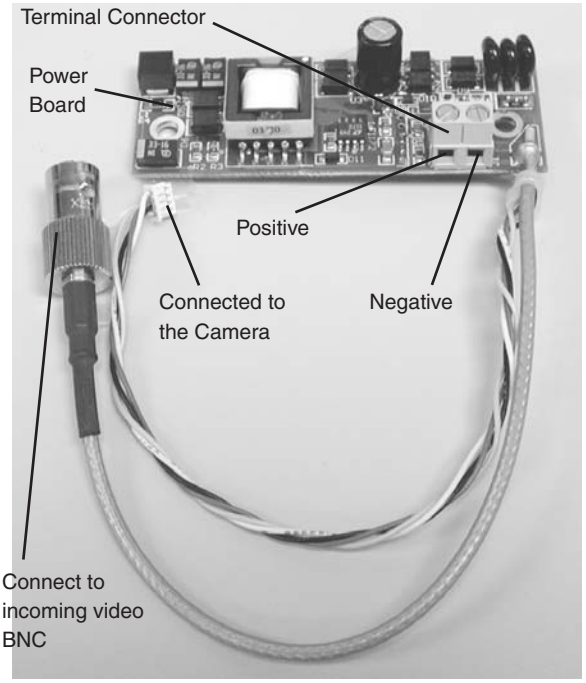


Figure 2

3. Attach the back box to the double gang box installed in the wall, carefully arranging wiring to prevent damage. Secure using the 8-32 x 1/2" screws provided.
   NOTE: In outdoor applications be sure to use the mounting pads provided.

OPTIONAL WARRIOR TEST MONITOR CABLE (Part # - WSTMC)

DESCRIPTION

The Warrior Test Monitor Cable is a tool that allows users to view video from cameras via a small on-site monitor. It's quick and easy to use.

1. Using the security tool provided, loosen the four security fasteners and remove the housing top. NOTE: The housing top is held to the base by a lanyard.

2. Locate the power board on the inside of the housing. The Test Monitor Cable plug is located beside the terminal block where incoming power is connected (Figure 3).

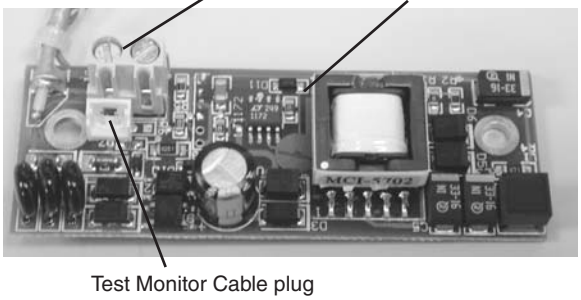
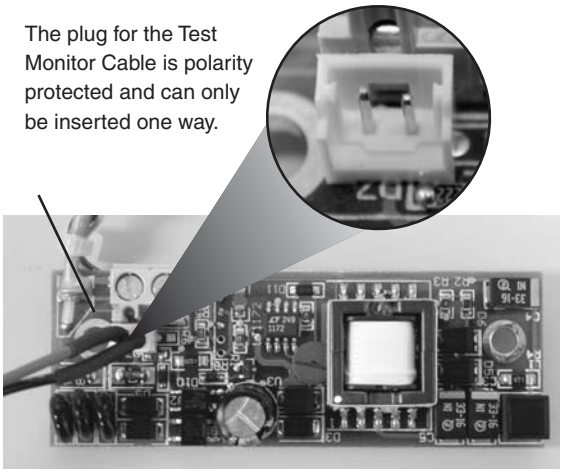


Figure 3

3. Plug the test monitor cable into the power board (Figure 4). Attach the BNC connector to your test monitor.



Test Monitor Cable (NOTE: Your cable may look different)

Figure 4

NOTE: The following instructions are for camera bracket setup, camera focusing, and camera set-up.
The final steps for installation follow these sections.

CAMERA BRACKET SETUP (Figure 5)

Reattach the bracket assembly to the back box using the two 10-32 x 3/8" screws.

NOTE: For ceiling mount applications do not fully tighten immediately.

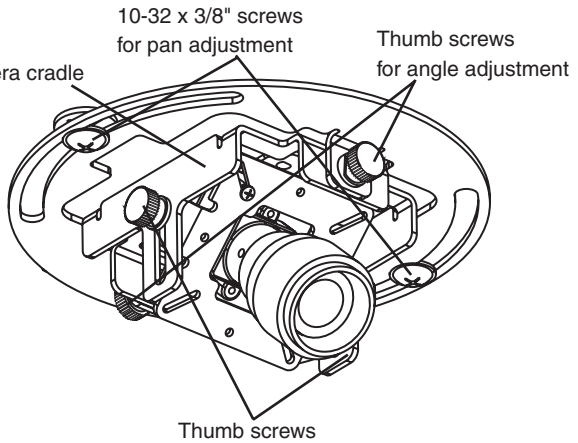


Figure 5

1. ROTATING THE CAMERA - To rotate the camera left or right, loosen the two 10-32 x #/8" screws and turn the bracket assembly in the direction you want to view. Retighten the screws when adjustment is complete.

2. TILTING THE CAMERA - To tilt the camera up or down, loosen the thumb screws holding the camera to the bracket. Retighten the thumb screws when adjustment is complete.

3. ADJUSTING THE ANGLE - If the ceiling is angled, use the camera cradle to level the camera. Loosen the two thumb screws holding the cradle to the bracket and adjust until level. Retighten the thumb screws when adjustment is complete.

NOTE: Use Loctite™ or an equivalent product to secure the thumb screws, especially where vibration is a concern.

CAMERA FOCUSING

Fixed Lens: Loosen the set screw in the lens mount and to manually rotate the lens until a clear picture is achieved. Once the focus is set, retighten the set screw (Figure 6).

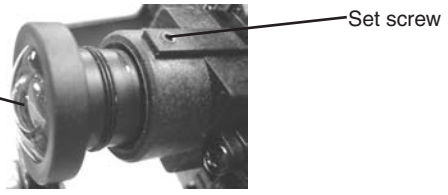


Figure 6

Vari-Focal Lens: First, adjust the Magnification Lock Screw to the desired magnification (telephoto to wide angle). Tighten the Lock Screw. Next, adjust the Focus Lock Screw until a clear picture is achieved. Tighten the Lock Screw (Figure 7).

Figure 7

Auto Iris Lens:

NOTE: THE AUTO IRIS LENS IS SET AT THE FACTORY.

- **IF YOU EXPERIENCE VIDEO TOO LIGHT OR DARK AUTO IRIS ADJUSTMENT MAY BE NEEDED.**

SEE THE TROUBLESHOOTING SECTION FOR ADJUSTMENT INFORMATION.

CAMERA SETTINGS

NOTE: To determine which camera is used in your unit, locate the serial number on the inside of the housing. Match the two letter prefix with the corresponding instructions included here for adjustments.

SERIAL NUMBERS BEGINNING WITH YK

FIXED AND FIXED VARI-FOCAL LENSES. There are no user adjustable settings on these units (Figure 7).

BW Fixed and Vari-Focal

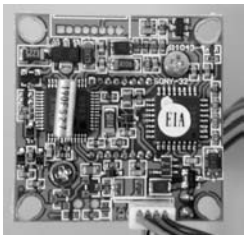


Figure 7

AUTO IRIS LENSES. The dip switches are factory set with AES off and backlight compensation on (Figure 8). The auto iris is also set at the factory, but an adjustment screw is included for use if needed. See page 10 for instructions on adjusting Auto Iris.

BW Auto Iris

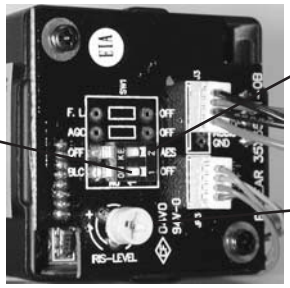


Figure 8

SERIAL NUMBERS BEGINNING WITH MC

The operational settings for the camera are defined by ten dip switches located on the PC Board (Figure 9). Moving the switches to the on position will activate each setting. Factory defaults are pictured below (Figure 10 and 11).

Hi-Res Color, Fixed and Vari-focal fixed lenses

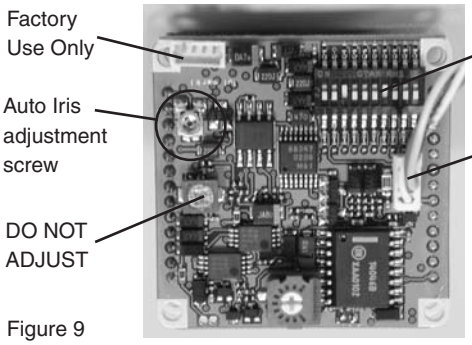


Figure 9

NOTE: Dip switches are factory pre-set for optimum performance. In certain **specific** instances it may be necessary to adjust one or more settings. Consult a qualified technician before making any adjustments**.** A Dip Switch settings chart is available in the next column.

FACTORY DEFAULT FIXED AND FIXED VARI-FOCAL LENSES:
Dip Switches 5 and 7 on, all others off.

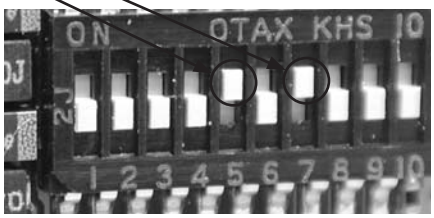


Figure 10

FACTORY DEFAULT AUTO IRIS LENSES:
Dip Switches 3, 5 and 7 on, all others off.

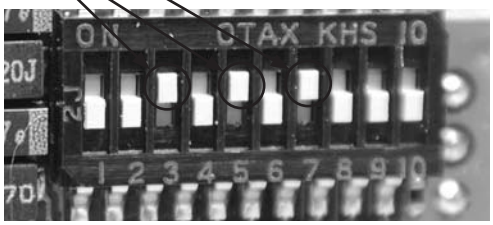


Figure 11

MC CAMERA DIP SWITCH SETTINGS CHART

SWITCH	SETTING	DEFINITION
1	Flickerless Mode	Setting this switch to "On" and switch 3 (MIRIS) to "Off" will help to reduce the flicker in fluorescent lights
2	BLC (Back Light Compensation)	Helps prevent an object from being washed out when the object is directly in front of a light source.
3	MIRIS (Manual/ Electronic Iris	When the switch is in the on position the auto iris lens controls the amount of light on the chip. If in the off position the light level is controlled electronically.
4	GAMMA	Helps balance the contrast in the picture.
5	AGCMAX (auto/gain control)	Allows day/night cameras to switch to b/w in low light conditions, also helps with low light conditions in standard and hi-res cameras
6 7 8	(Automatic White Balance Control) AW1 AW2 AW3	Used to help improve the color quality of the camera picture under different lighting conditions. The Factory Default is Switch 7 "ON", switches 6 and 8 "OFF". **NOTE: ANY ADJUSTMENTS TO THESE SETTINGS SHOULD ONLY BE MADE BY A QUALIFIED CCTV TECHNICIAN** See examples below to help with any adjustments.
9	AEREF	This sets the electronic convergence level. In the "off" position the level is set to 100 IRE; in the "on" position the user can set the level. Not used with auto Iris
10	AEME	With this switch in the "On" position users can manually adjust the shutter speed and gain using other switches See the tables below for specific settings

SHUTTER SPEED			
Flickerless (1)	BLC (2)	MIRIS (3)	Shutter Speed
On	Off	Off	1/100 Sec.
Off	On	Off	1/60 Sec.

GAIN			
MIRIS (3)	AEREF (9)	AGCMAX (5)	Gain
On	Off	Off	0dB
On	On	Off	6dB
On	Off	On	12dB
On	On	On	18dB

SERIAL NUMBERS BEGINNING WITH CB

NOTE: This hi-res color camera uses a 1/4" chip and a 3-6mm auto iris lens. It is comparable to a 1/3" chip using a 4-9mm auto iris lens.

The operational settings are defined by four dip switches located on the side of the PC Board (Figure 12 and 13). Moving the switches to the UP position will activate specific settings. Refer to the chart below.

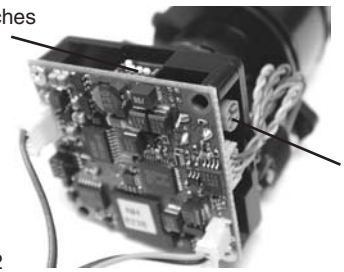


Figure 12

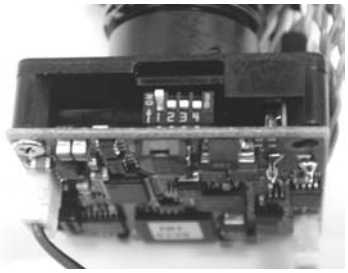


Figure 13

Dip Switch	UP	DOWN
1 (Iris)	Auto Iris On	Position for Fixed Lens
2 (Flickerless)	Shutter speed fixed at 1/100 sec.	Normal
3 (Back Light Compensation	ON	Normal
4 (Synch Mode)	Internal Synch	Line Lock Mode

SERIAL NUMBERS BEGINNING WITH CT

FIXED AND FIXED VARI-FOCAL LENSES. There are no user adjustable settings on these units (Figure 14)
AUTO IRIS LENSES: The auto iris can be adjusted if needed. See the Troubleshooting section for instructions.

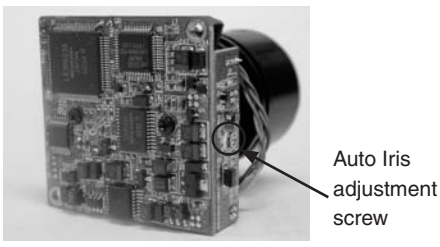


Figure 14

COMPLETION OF INSTALLATION

1. A cardboard template is included to test the adjustment of your lens/bracket setup before reattaching the housing top. Place the template over the lens/bracket set up, either on the back of the housing or in opposing front plate screw holes depending on the orientation of the setup. If the lens touches the cardboard the setup WILL touch the dome or window. Readjust accordingly.

2. When the desired focus and location are achieved tighten the thumb screws on the brackets in place using needle-nose pliers. Use Loctite™ or an equivalent product to secure the screws, especially in installations where vibration is a concern.

3. **WARRIOR 2 -** Adjust the inner liner so that the camera lens "sees" through the opening. Replace the housing top and tightly fasten the (4) security screws with the security tool.
   WARRIOR 4 - Replace the housing top and tightly fasten the (4) security screws with the security tool.

DOME/WINDOW CARE

WARRIOR 2

Handle the dome carefully to prevent scratching. If a scratch appears over the lens you can turn the dome to move the scratch out of view. Remove the housing top as noted earlier. Loosen the (4) 10-32 Phillips head screws inside the top and turn the dome to the desired orientation (Figure 15). Retighten the screws and replace the top, making sure the inner liner opening lines up with the camera lens. Clean the dome with an appropriate non-abrasive cleaner.

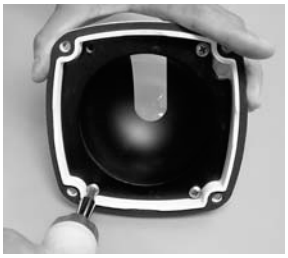


Figure 15

WARRIOR 4

The Warrior 4 is equipped with a scratch resistant window and a **Window Guard™ paint shield**. The shield can be quickly changed in cases of vandalism. Remove the housing top as directed earlier. Loosen the (4) 8-32 Phillips head screws holding the window in place and take out the window (Figure 16). Remove the vandalized paint shield and replace it with a new one. Reattach the window, making sure the paint shield is between the housing and the window, and reattach the housing top. Clean the window with an appropriate non-abrasive cleaner.

Figure 16

ADDENDUM 1

UNSHIELDED TWISTED PAIR VIDEO WIRING

NOTE: The customer must purchase the Video Transceiver from NVT. Part numbers are:

- NV-212A (500 ft.)
- * NV-213A or NV-213A-M (1000 ft.)
- NV-652R, NV-862R, or NV-1662R (3000 ft.)

The cameras included in the Warrior series are able to transmit video signals to NVT receivers via unshielded twisted pair cable. You must purchase the receiver separately. Instructions for connecting the receiver end of the unshielded twisted pair cable will be included with the NVT receiver. Following are instructions for connecting the unshielded twisted pair cable to the PC board inside your Warrior housing. See the TROUBLESHOOTING section in the back of these instructions if you experience any problems.

1. Connect the unshielded twisted pair cable to the positive and negative screw terminals on the Warrior PC board (Figure 17).

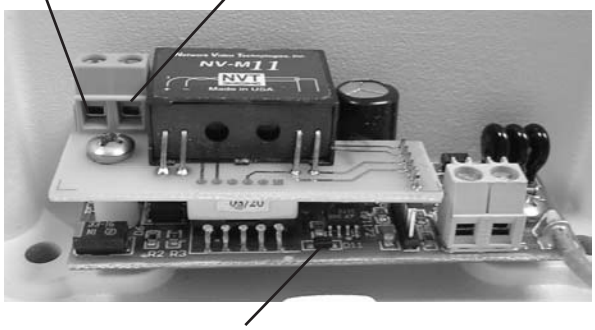


Figure 17

2. Connect the other end of the unshielded twisted pair cable to the NVT receiver.
   CAUTION: The unshielded twisted pair video signal is polarity dependent. The positive video terminal on the Warrior PC board MUST be connected to the positive terminal on the NVT receiver, and negative MUST be connected to negative.
3. When using unshielded twisted pair cable you DO NOT need the BNC connector. Be sure that there is no video connection other than the unshielded twisted pair cable.

Wiring Notes

Wire — What to **DO**

1. **DO** use point-to-point Unshielded Twisted Pair wire, gauge 24 or thicker, stranded or solid, Category 2, 3, 4, or 5.
2. The video signal may co-exist in the same wire bundle as other video, telephone, data, control signals, or low-voltage power. It is also OK to run NVT video signals in or near electromagnetic fields (in accordance with National Electrical Code, local, or other local safety requirements).
3. **DO** measure the wire distance. Use only transceivers that are designed for that distance.
4. **DO** make sure the pair of wires carrying the video signal is sent as a twisted pair (e.g. the blue-white/white-blue wires twisted together as a pair), not a “split-pair” (e.g. blue-white conductor, part of one pair/orange-white conductor, part of another pair).

Wire — What NOT to DO

1. **DO NOT USE SHIELDED TWISTED PAIR WIRE.** It will severely degrade the distance performance. Short runs may be used with some signal degradation (for example elevator traveler cables). Multi-pair wire with an overall shield is OK.
2. **DO NOT USE UN-TWISTED WIRE.** It will reduce the NVT product’s inherent interference immunity.
3. **DO NOT** allow your installation to have “bridge-taps”, loading coils, talk-battery, or MOV type protectors. Bridge-taps are where a twisted pair is connected to two twisted pairs (such as an extension phone at home). Bridge-taps cause reflections as the signal propagates, resulting in “ghosts” in the video image, and are to be avoided.
4. If the phone company is providing the cable runs between buildings, make sure it’s “dry copper” i.e. it should have none of the following: dial-tone, 48 volts, loading coils, bridge-taps, switching, or long paths to the phone company’s central office and back.
5. Due to near-end crosstalk, **DO NOT** send a transmit and a receive signal in the same wire bundle. Exceptions: Less than 1,000 ft (300m), or Category 5 cable, up to 2,000 ft (600m) are OK.
6. **DO NOT** send “Up-the-Coax” Pan/Tilt/Zoom signals through active (amplified) NVT transceivers.
7. For safety, never put NVT signals in the same conduit as high-voltage wiring.
8. **WARNING** — to reduce a risk of fire or electrical shock, do not expose this product to rain or moisture.

Measure your wire distance

Note: All NVT quoted distance specifications include any coax in the run. It is recommended that the wire distance be measured to ensure that the capability of the NVT product is correct.

Wire resistance may be measured with an ohm-meter by shorting the two conductors together at the far end, and measuring the loop-resistance out and back. Compare your readings with the charts on the next page.

Cable Distance	Unshielded Twisted-Pair Wire Gauge (AWG) 18	19	20	22	24
250 ft	3 Ω	4 Ω	5 Ω	8 Ω	13 Ω
300 ft	4 Ω	5 Ω	6 Ω	10 Ω	16 Ω
400 ft	5 Ω	6 Ω	8 Ω	13 Ω	21 Ω
500 ft	6 Ω	8 Ω	10 Ω	16 Ω	26 Ω
600 ft	8 Ω	10 Ω	12 Ω	19 Ω	31 Ω
800 ft	10 Ω	13 Ω	16 Ω	25 Ω	42 Ω
1000 ft	13 Ω	16 Ω	20 Ω	32 Ω	52 Ω
1250 ft	16 Ω	20 Ω	25 Ω	40 Ω	65 Ω
1500 ft	19 Ω	24 Ω	30 Ω	48 Ω	78 Ω
1750 ft	23 Ω	28 Ω	35 Ω	55 Ω	91 Ω
2000 ft	26 Ω	32 Ω	40 Ω	63 Ω	104 Ω
2500 ft	32 Ω	40 Ω	49 Ω	79 Ω	131 Ω
3000 ft	39 Ω	48 Ω	59 Ω	95 Ω	157 Ω
3500 ft	45 Ω	56 Ω	69 Ω	111 Ω	183 Ω
4000 ft	52 Ω	64 Ω	79 Ω	127 Ω	209 Ω
5000 ft	65 Ω	80 Ω	99 Ω	158 Ω	261 Ω
6000 ft	78 Ω	95 Ω	119 Ω	190 Ω	313 Ω
8000 ft	104 Ω	127 Ω	158 Ω	253 Ω	418 Ω

Cable Distance	Unshielded Twisted-Pair Wire Gauge (AWG) 18	19	20	22	24
75 m	3 Ω	4 Ω	5 Ω	8 Ω	13 Ω
100 m	4 Ω	5 Ω	6 Ω	10 Ω	17 Ω
125 m	5 Ω	7 Ω	8 Ω	13 Ω	21 Ω
150 m	6 Ω	8 Ω	10 Ω	16 Ω	26 Ω
200 m	9 Ω	10 Ω	13 Ω	21 Ω	34 Ω
300 m	13 Ω	16 Ω	19 Ω	31 Ω	51 Ω
400 m	17 Ω	21 Ω	26 Ω	42 Ω	69 Ω
500 m	21 Ω	26 Ω	32 Ω	52 Ω	86 Ω
600 m	26 Ω	31 Ω	39 Ω	62 Ω	103 Ω
750 m	32 Ω	39 Ω	49 Ω	78 Ω	129 Ω
900 m	38 Ω	47 Ω	58 Ω	94 Ω	154 Ω
1000 m	43 Ω	52 Ω	65 Ω	104 Ω	171 Ω
1200 m	51 Ω	63 Ω	78 Ω	125 Ω	206 Ω
1500 m	64 Ω	78 Ω	97 Ω	156 Ω	257 Ω
1800 m	77 Ω	94 Ω	117 Ω	187 Ω	309 Ω
2400 m	102 Ω	125 Ω	156 Ω	249 Ω	411 Ω

Cable Distance	Unshielded Twisted-Pair Wire Gauge (mm) 1.0	0.8	0.7	0.6	0.5
75 m	3	5	6	9	13 Ω
100 m	4	7	9	12	18 Ω
125 m	6	8	11	15	22 Ω
150 m	7	10	13	18	27 Ω
200 m	9	13	17	24	36 Ω
300 m	13	20	26	36	54 Ω
400 m	18	27	35	48	72 Ω
500 m	22	33	43	60	90 Ω
600 m	26	40	52	72	108 Ω
750 m	33	50	65	89	135 Ω
900 m	40	60	78	107	162 Ω
1000 m	44	66	86	119	179 Ω
1200 m	53	80	104	143	215 Ω
1500 m	66	100	130	179	269 Ω
1800 m	79	120	155	215	323 Ω
2400 m	106	159	207	286	431 Ω

ADDENDUM 2

IFS FIBER CONNECTION

NOTE: The customer must purchase the Receiver from IFS. Part number are:

- VR1000
- VR1001
- VR1001-R3
- VR1100
- VR1100-R3
- VR2100
- VR2100-R3

Lifetime warranty on the fiber module

1. Connect power to the terminal connector as shown in the general instructions.

2. Select a quality fiber optic cable containing either 50/125 or 62.5/125 fiber. Attach an ST style fiber optic connector to the cable using the connector manufacturer's recommended procedures.

3. Attach the connector just assembled to the ST Connector OPTICAL OUT. Feed the cable through the conduit opening. Complete connections and attach outside the housing according to manufacturer's recommended procedures.

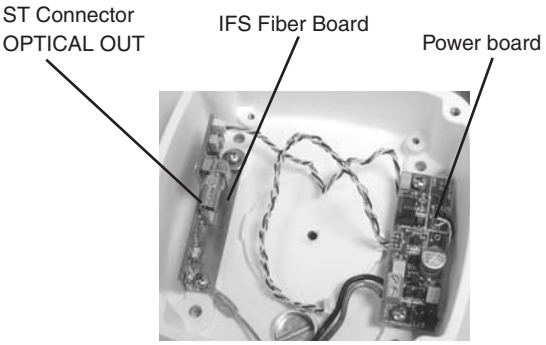


Figure 18

IMPORTANT SAFEGUARDS

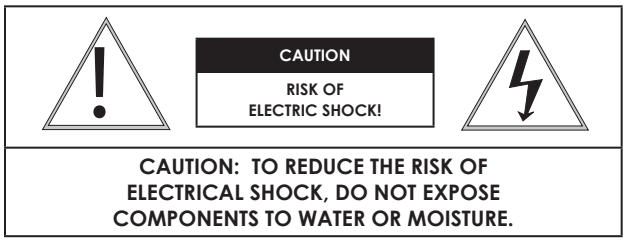
1. **Read Instructions** - All the safety and operating instructions should be read before the unit is operated.
2. **Retain Instructions** - The safety and operating instructions should be retained for future reference.
3. **Heed Warnings** - All warnings on the unit and in the operating instructions should be adhered to.
4. **Follow Instructions** - All operating & user instructions should be followed.
5. **Electrical Connections** - Only a qualified electrician should make electrical connections.
6. **Attachments** - Do not use attachments not recommended by the product manufacturer as they may cause hazards.
7. **Cable Runs** - All cable runs must be within permissible distance.
8. **Mounting** - This unit must be properly and securely mounted to a supporting structure capable of sustaining the weight of the unit. Accordingly:
   a. Installation should be made by a qualified installer.
   b. Installation should be in compliance with local codes.
   c. Care should be exercised to select suitable hardware to install the unit, taking into account both the composition of the mounting surface and the weight of the unit. Be sure to periodically examine the unit and the supporting structure to make sure that the integrity of the installation is intact. Failure to comply with the foregoing could result in the unit separating from the support structure and falling, with resultant damages or injury to anyone or anything struck by the falling unit.

UNPACKING

Unpack carefully. Electronic components can be damaged if improperly handled or dropped. If an item appears to have been damaged in shipment, replace it properly in its carton and notify the shipper. ***Be sure to save:***

1. The shipping carton and packaging material. They are the safest material in which to make future shipments of the equipment.
2. These Installation and Operating Instructions.

SAFETY PRECAUTIONS



CAUTION: TO REDUCE THE RISK OF ELECTRICAL SHOCK, DO NOT EXPOSE COMPONENTS TO WATER OR MOISTURE.

The lightning flash with an arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of non-insulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

SERVICE

If the unit ever needs repair service, customer should contact Videolarm (1-800-554-1124) for return authorization & shipping instructions.

TECHNICAL SUPPORT

Videolarm has set-up a 24 hour technical support line for their customers.

24 HOUR TECHNICAL SUPPORT

1-800-554-1124

LIMITED WARRANTY FOR VIDEOLARM INC. PRODUCTS

VIDEOLARM INC. *warrants this Product to be free from defects in material or workmanship, as follows:*

PRODUCT CATEGORY	PARTS	LABOR
All Enclosures and Electronics	Five (5) Years	Five (5) Years
Pan/Tilts	Three (3) Years **6 months if used in autoscan / tour operation	Three (3) Years **6 months if used in autoscan / tour operation
Poles/PoleEvators	Three (3) Years	Three (3) Years
Warrior/Q-View/I.R. Illuminators	Five (5) Years	Five (5) Years
SView Series	Five (5) Years **6 months if used in autoscan / tour operation	Five (5) Years **6 months if used in autoscan / tour operation
Controllers	Five (5) Years	Five (5) Years
Power Supplies	Five (5) Years	Five (5) Years
Accessory Brackets	Five (5) Years	Five (5) Years

During the labor warranty period, to repair the Product, Purchaser will either return the defective product, freight prepaid, or deliver it to Videolarm Inc. Decatur GA. The Product to be repaired is to be returned in either its original carton or a similar package affording an equal degree of protection with a RMA # (Return Materials Authorization number) displayed on the outer box or packing slip. To obtain a RMA# you must contact our Technical Support Team at 800.554.1124, extension 101. Videolarm will return the repaired Product freight prepaid to Purchaser. Videolarm is not obligated to provide Purchaser with a substitute unit during the warranty period or at any time. After the applicable warranty period, Purchaser must pay all labor and/or parts charges.

The limited warranty stated in these product instructions is subject to all of the following terms and conditions:

1. NOTIFICATION OF CLAIMS: WARRANTY SERVICE: If Purchaser believes that the Product is defective in material or workmanship, then written notice with an explanation of the claim shall be given promptly by Purchaser to Videolarm but all claims for warranty service must be made within the warranty period. If after investigation Videolarm determines that the reported problem was not covered by the warranty, Purchaser shall pay Videolarm for the cost of investigating the problem at its then prevailing per incident billable rate. No repair or replacement of any Product or part thereof shall extend the warranty period as to the entire Product. The specific warranty on the repaired part only shall be in effect for a period of ninety (90) days following the repair or replacement of that part or the remaining period of the Product parts warranty, whichever is greater.

2. EXCLUSIVE REMEDY: ACCEPTANCE: Purchaser's exclusive remedy and Videolarm's sole obligation is to supply (or pay for) all labor necessary to repair any Product found to be defective within the warranty period and to supply, at no extra charge, new or rebuilt replacements for defective parts.

3. EXCEPTIONS TO LIMITED WARRANTY: Videolarm shall have no liability or obligation to Purchaser with respect to any Product requiring service during the warranty period which is subjected to any of the following: abuse, improper use: negligence, accident, lightning damage or other acts of God (i.e., hurricanes, earthquakes), modification, failure of the end-user to follow the directions outlined in the product instructions, failure of the end-user to follow the maintenance procedures recommended by the International Security Industry Organization, written in product instructions, or recommended in the service manual for the Product. Furthermore, Videolarm shall have no liability where a schedule is specified for regular replacement or maintenance or cleaning of certain parts (based on usage) and the end-user has failed to follow such schedule; attempted repair by non-qualified personnel; operation of the Product outside of the published environmental and electrical parameters, or if such Product's original identification (trademark, serial number) markings have been defaced, altered, or removed. Videolarm excludes from warranty coverage Products sold AS IS and/or WITH ALL FAULTS and excludes used Products which have not been sold by Videolarm to the Purchaser. All software and accompanying documentation furnished with, or as part of the Product is furnished "AS IS" (i.e., without any warranty of any kind), except where expressly provided otherwise in any documentation or license agreement furnished with the Product.

4. PROOF OF PURCHASE: The Purchaser's dated bill of sale must be retained as evidence of the date of purchase and to establish warranty eligibility.

DISCLAIMER OF WARRANTY EXCEPT FOR THE FOREGOING WARRANTIES, VIDEOLARM HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO ANY AND/OR ALL IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND/OR ANY WARRANTY WITH REGARD TO ANY CLAIM OF INFRINGEMENT THAT MAY BE PROVIDED IN SECTION 2-312(3) OF THE UNIFORM COMMERCIAL CODE AND/OR IN ANY OTHER COMPARABLE STATE STATUTE. VIDEOLARM HEREBY DISCLAIMS ANY REPRESENTATIONS OR WARRANTY THAT THE PRODUCT IS COMPATIBLE WITH ANY COMBINATION OF NON-VIDEOLARM PRODUCTS OR NON-VIDEOLARM RECOMMENDED PRODUCTS PURCHASER CHOOSES TO CONNECT TO PRODUCT.

LIMITATION OF LIABILITY THE LIABILITY OF VIDEOLARM, IF ANY, AND PURCHASER'S SOLE AND EXCLUSIVE REMEDY FOR DAMAGES FOR ANY CLAIM OF ANY KIND WHATSOEVER, REGARDLESS OF THE LEGAL THEORY AND WHETHER ARISING IN TORT OR CONTRACT, SHALL NOT BE GREATER THAN THE ACTUAL PURCHASE PRICE OF THE PRODUCT WITH RESPECT TO WHICH SUCH CLAIM IS MADE. IN NO EVENT SHALL VIDEOLARM BE LIABLE TO PURCHASER FOR ANY SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY KIND INCLUDING, BUT NOT LIMITED TO, COMPENSATION, REIMBURSEMENT OR DAMAGES ON ACCOUNT OF THE LOSS OF PRESENT OR PROSPECTIVE PROFITS OR FOR ANY OTHER REASON WHATSOEVER.

TROUBLESHOOTING

If you experience problems with the camera picture please check these simple troubleshooting procedures for possible solutions before calling technical support.

STATIONARY OR SCROLLING HORIZONTAL LINES ON SCREEN

GROUND LOOPS

Generally a horizontal line on screen, whether moving or stationary, means you have a ground loop problem. The video shield should only be connected to ground through the monitor or other electronic equipment that uses the video signal. Connecting the video shield to ground at the camera will create a ground loop, which may interfere with the video signal (See Figure A). This should not damage the camera, but the video signal may become unusable. A ground loop problem will cause a dark horizontal bar to slowly "scroll" through the picture. To solve this problem, remove all ground connections from the video connection EXCEPT for the ground at the terminating end of the video signal.

The video termination should be a 75-ohm impedance, standard in monitors and other video equipment. If the video signal goes to more than one piece of equipment, a monitor and multiplexer input for instance, insure that one and only one piece of equipment terminates the video signal with 75 ohms; otherwise the image will be degraded and may appear to be unusually dim.

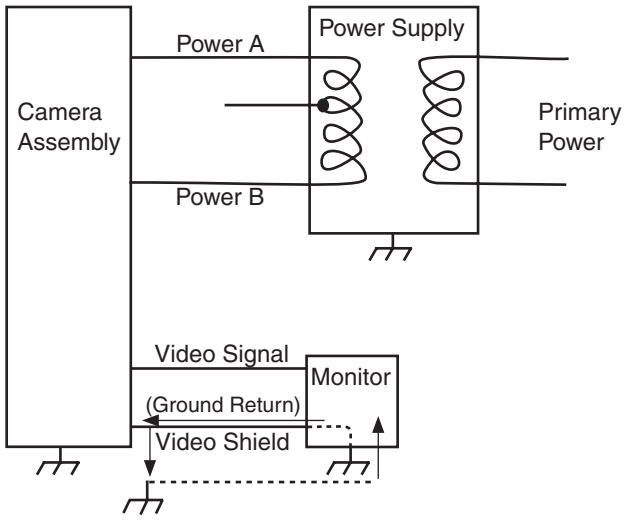


Figure A Ground Loop

IMPORTANT NOTE: If you have removed the ground loop and the horizontal line still remains on screen call Videolarm technical support for further information.

LINE LOCK

All cameras are all shipped from the factory with the line lock function disabled. If your application requires Line Lock contact Videolarm.

AUTOMATIC BROWN OUT FEATURE

The camera includes an automatic brown out feature which is activated whenever the incoming voltage drops below 10 VAC or VDC.

PICTURE IS CLEAR, LOW OR NO COLOR; PICTURE IS DARK OR GRAINY IN GOOD LIGHTING CONDITIONS

The auto iris lens is set at the factory. If you experience video too light or dark you can manually adjust using the auto iris adjustment screw.

If there is low or no color the Auto Iris is too open, if the picture is dark or grainy in good conditions the Auto Iris is too closed.

To adjust the auto iris lens, first locate the AUTO IRIS ADJUSTMENT SCREW on the camera PC board. Using a small insulated screwdriver (blade width of from 1/16" to 3/32"), adjust the control. Turning the control CLOCKWISE opens the iris, making the image brighter.

Turning the control COUNTER CLOCKWISE closes the iris, making the image darker.

SERIAL NUMBER YK CAMERAS

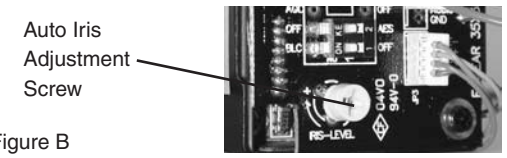


Figure B

SERIAL NUMBER MC CAMERAS

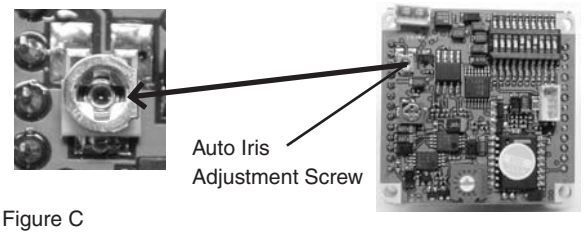


Figure C

SERIAL NUMBER CB CAMERAS

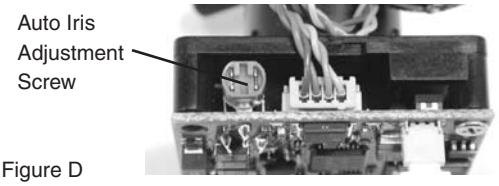


Figure D

SERIAL NUMBER CT CAMERAS

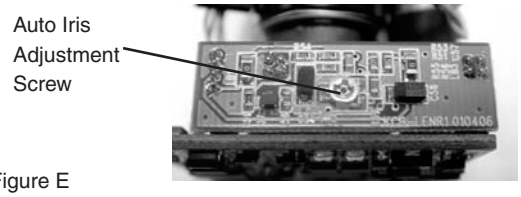


Figure E

IMPORTANT NOTE ON AUTO IRIS ADJUSTMENT:

WHEN ADJUSTING, USE A SMALL, INSULATED SCREW-DRIVER. The auto iris adjustments are very sensitive. Use gentle pressure when turning. To adjust, turn either clock-wise or counter-clockwise no more than one degree at a time. Check the monitor after each turn to determine is the desired brightness and color have been obtained. When the adjustment is satisfactory, place a hand over the lens to block out all light. Quickly remove the hand to be sure the iris reacts.

NVT TROUBLESHOOTING

If you are experiencing problems, attempt to simplify your setup. Test each cable segment separately. For example, test the camera and monitor together without the other equipment. Then add in the NVT transceivers, back-to-back. Test each segment of a long cable-run independently. Attempt to isolate the problem.

Below are problems that may be encountered. If the suggestions below are not helpful, or the recommendations are not effective, please call NVT's customer support. NVT customer support can be reached 8:00 AM to 5:30 PM PST at (800) 959-9870 or at (+1) (650) 562-0600.

FAINT OR BLURRY PICTURE; LITTLE OR NO COLOR

Possible causes include:

1. Shielded twisted-pair cable. Verify that the wire is unshielded twisted-pair cable. Multi-pair cable with an overall shield is OK.
2. Longer wire distance than expected. Be sure to include any coax cable that's part of this distance. Verify end-to-end connectivity with an ohm meter. Measure the distance by disconnecting the transceivers, shorting the far end, reading the loop's resistance at the near end. See above for ohm vs. distance ratings. If necessary, replace transceivers with correct models specified for this distance.
3. Incorrect distance equalization setting. Adjust the equalization controls) with a mini screwdriver (NV-652R, NV-862R or the NV-1662R). If the transmitter is an NV-653T, verify correct equalization switch setting.
4. Poor connection at a punch-block, splice, or coax cable. Re-check using the method described in #2 above, or use a wire test set.
5. Short between conductors of the twisted-pair. Use an ohm meter to locate the short.
6. Transient protection devices employing metal-oxide varistors. Use carbon blocks, gas-discharge tubes, or NVT transceivers with built-in protection.
7. Check the camera. Are the focus and iris set correctly? Verify with portable monitor.

EXTREMELY FAINT PICTURE

Only faint shadows of the original picture are visible. One of the twisted pair conductors is open or the wires are shorted together. Check with an ohm meter.

OVER-SATURATED COLORS; HIGH CONTRAST GRAINY PICTURE; TOO BRIGHT, TORN PICTURE

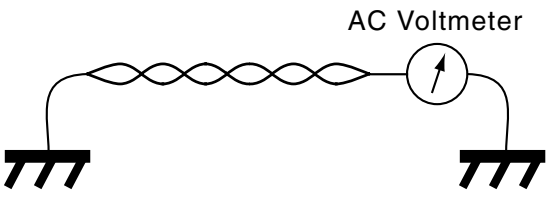
Adjust the distance equalization as necessary. Verify that the monitor has a 75 termination, not in "loop-through".

WON'T SYNC; WIDE, WHITE JAGGED AREAS

Looks like a scrambled Cable TV signal. Check polarity.

WON'T SYNC; TORN PICTURE

1. Make sure that you are using unshielded twisted pair wire.
2. Check distance equalization settings.
3. For installations with passive (non-amplified) transceivers at both ends, check for ground loops. This may be done with an AC Voltmeter, as shown below:



If the voltage is greater than 1/2 volt, use an amplified receiver, such as the NV-652R, NV-862R, or NV-1662R.

Alternately, remove the ground at one end (usually at the camera end). Be sure that floating the camera conforms to local/regional and National Electrical Codes.

4. Check for crosstalk from a second video path. Disconnect all other video sources. If the problem goes away, check for a split-pair or un-twisted wire.

FAINT STRIPES GLIDING UP OR DOWN THE SCREEN

These are caused by crosstalk from a second video path, or with ground-loops in installations employing passive models at both ends.

1. To identify, disconnect all other video signals temporarily. If the interference goes away, check the wire to make sure the signal is traveling through a twisted pair. Is two-way video being sent more than 1,000 ft (300m) over Category 2 or 3 wire? If so, the send and receive signals may need to go in separate jacketed cables, or upgrade to Category 5 wire.
2. Next, check for ground loops. See #3 above.

NO POWER LIGHT ON THE NVT UNIT

Check the blue "power" LED on powered NVT units. If the light is not on, the receiver is not getting power. Re-check the power source and connections.

If the green LED is on but the power LED is off, check that the power supply is floating. Grounding one side of the power input may cause this condition.

NO GREEN LIGHT, NO VIDEO

The NV-652R, NV-862R or NV-1662R series receiver/hub is not detecting a video signal. There is an open or shorted connection. Use a multimeter to locate the fault.

GHOSTS

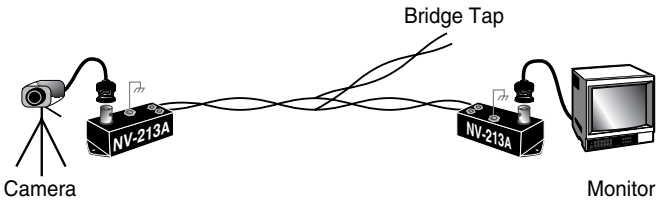
Faint shadows of the original signal shifted to the right. This is caused by an impedance mismatch along the wire. Verify that the monitor is terminated with 75 (not in "loop-through".) Check that all wire is **unshielded** twisted pair. The high-frequency wire impedance should be 100. Check for bridge-taps (see below) either by inspecting wiring closet connections, or, if available, using a "Time-Domain Reflectometer" (T.D.R.), sometimes called a "cable tester".

If the faint shadows are not copies of the original picture, but from the picture of some other camera, check for crosstalk:

Is any portion of the wire un-twisted?

Are the signals from two cameras split between two pairs?

Is there a short between a conductor of one signal and a conductor of another?



CABLE AND POWER GUIDELINES

This chart shows the proper current needed for power supplies for Warrior Series cameras. Use Class 2 Power only. Input voltage must be between 12-28 VDC or 15-28 VAC

VOLTAGE	CURRENT	POWER
12 VDC	350mA	4.2W
24 VAC	202mA	4.8W

Depending on the voltage being used, refer to one of the formulas below to select the correct power supply for cameras connected in parallel (positive to positive, negative to negative):

Total current for a 12 VDC system:
TOTAL CURRENT = (350mA x total number of cameras) Example: 350mA x 5 total cameras = 1750mA

Total current for a 24 VAC system:
TOTAL CURRENT = (202mA x total number of cameras) Example: 202mA x 5 total cameras = 1010mA

NOTE: If you're using a 12 VDC power supply and experience problems check the voltage at the camera's power input. This voltage should not be less than 11 VDC. If you're measuring less than 11 VDC you'll need to use a power supply with a higher current rating.

Power Supply Cable Maximum Length (feet/meters)

Total Load	Power Supply	24 AWG	22 AWG	18 AWG	16 AWG
4.2W	12 VDC	55/16	88/26	223/67	355/108
4.8W	24 VAC	867/264	1380/420	3488/1063	5547/1690

NOTE: The above table is based on a "worst-case" power supply. Using a regulated or switching power supply can increase your cable distance. A CSA/UL listed Class 2 power supply must be used. Videolarm recommends its PS12 12 VDC 1000mA power supply for 12 VDC appl,ications

Video Cable Maximum Length (feet/meters)

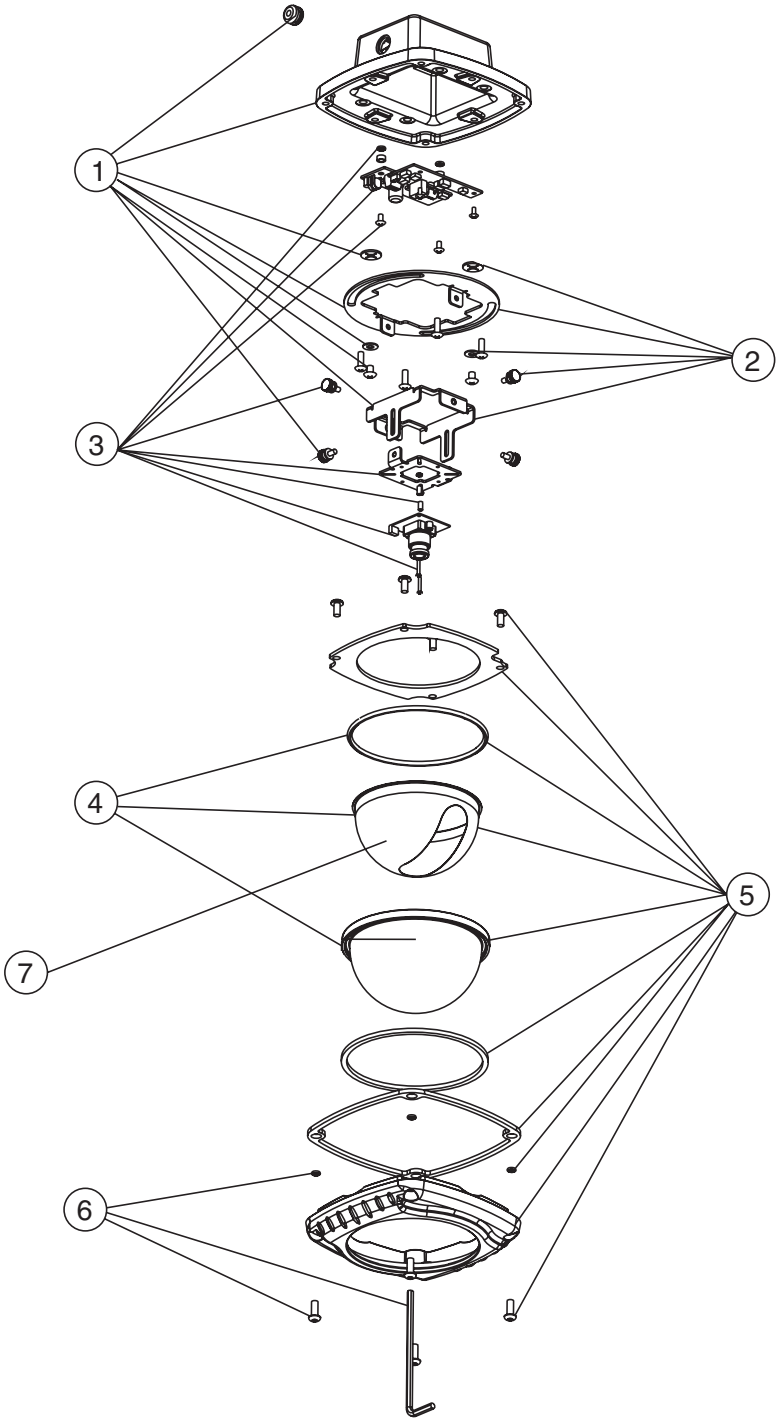
Cable Type	RG-59	RG-6	RG-11
Wire Gauge	23 AWG*	18 AWG*	16 AWG*
Max. Length	750/229	1500/457	1800/549

** Copper clad steel core, 95% braided shield*

Maximum Length (feet/meters)

AWG	250/76	500/152	1000/305	1500/457	2000/610	3000/914
18	3Ω	6Ω	13Ω	19Ω	26Ω	40Ω
20	5Ω	10Ω	20Ω	30Ω	40Ω	59Ω
22	8Ω	17Ω	33Ω	48Ω	66Ω	99Ω
24	13Ω	26Ω	52Ω	78Ω	108Ω	163Ω

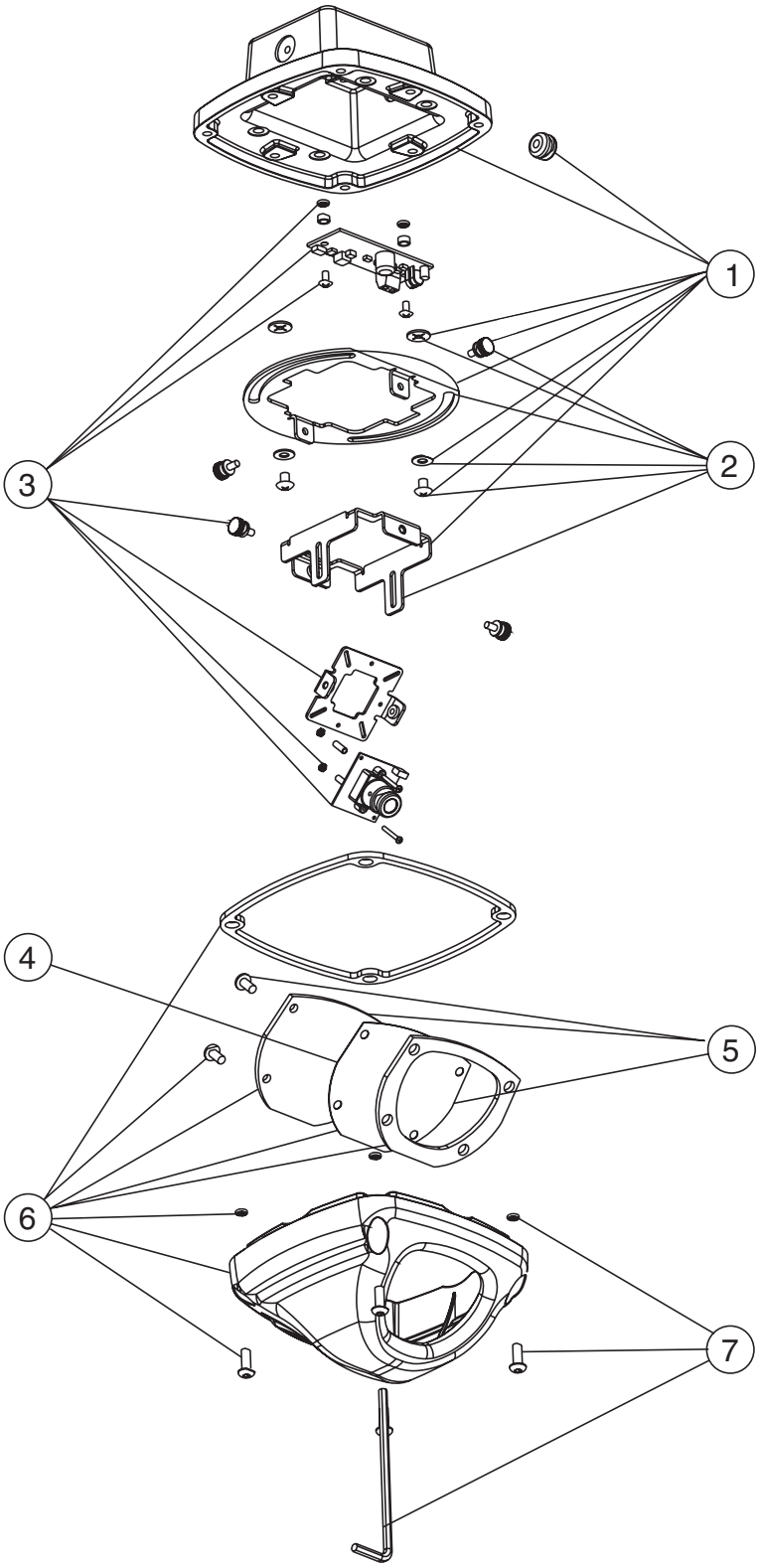
WS2 -
Exploded Diagram



WS2 -
Replacement Parts List

	Part Number	Description
1	RPWS2010	WARRIOR 2 & 4 BASE ASSEMBLY
2	RPWS2020	WARRIOR 2 & 4 CARRIAGE ASSEMBLY KIT
		NTSC BOARD CAMERAS
3	RPWS1041F	WARRIOR 1 & 2 STANDARD RES, BLACK & WHITE, FIXED CAMERA KIT
	RPWS1041V	WARRIOR 1 & 2 STANDARD RES, BLACK & WHITE, VARIFOCAL CAMERA KIT
	RPWS1043F	WARRIOR 1 & 2 STANDARD RES, COLOR, FIXED CAMERA KIT
	RPWS1043V	WARRIOR 1 & 2 STANDARD RES, COLOR, VARIFOCAL CAMERA KIT
	RPWS1043A	WARRIOR 1 & 2 STANDARD RES, COLOR, AUTO-IRIS VARIFOCAL CAMERA KIT
	RPWS1045F	WARRIOR 1 & 2 HI-RES, COLOR, FIXED CAMERA KIT
	RPWS1045V	WARRIOR 1 & 2 HI-RES, COLOR, VARIFOCAL CAMERA KIT
	RPWS1045A	WARRIOR 1 & 2 HI-RES, COLOR, AUTO-IRIS VARIFOCAL CAMERA KIT
	RPWS1046A	WARRIOR 1 & 2 ULTRA HI-RES, COLOR, AUTO-IRIS VARIFOCAL CAMERA KIT
		PAL BOARD CAMERAS
	RPWS1041PF	WARRIOR 1 & 2 PAL STANDARD RES, BLACK & WHITE, FIXED CAMERA KIT
	RPWS1041PV	WARRIOR 1 & 2 PAL STANDARD RES, BLACK & WHITE, VARIFOCAL CAMERA KIT
	RPWS1043PF	WARRIOR 1 & 2 PAL STANDARD RES, COLOR, FIXED CAMERA KIT
	RPWS1043PV	WARRIOR 1 & 2 PAL STANDARD RES, COLOR, VARIFOCAL CAMERA KIT
	RPWS1043PA	WARRIOR 1 & 2 PAL STANDARD RES, COLOR, AUTO-IRIS VARIFOCAL CAMERA KIT
	RPWS1045PF	WARRIOR 1 & 2 PAL HI-RES, COLOR, FIXED CAMERA KIT
	RPWS1045PV	WARRIOR 1 & 2 PAL HI-RES, COLOR, VARIFOCAL CAMERA KIT
	RPWS1045PA	WARRIOR 1& 2 PAL HI-RES, COLOR, AUTO-IRIS VARIFOCAL CAMERA KIT
	RPWS1046PA	WARRIOR 1& 2 PAL ULTRA HI-RES, COLOR, AUTO-IRIS VARIFOCAL CAMERA KIT
4	RPWS1050	REPLACEMENT CAPSULE KIT FOR WARRIOR 1&2 (clear)
	RPWS1051	REPLACEMENT CAPSULE KIT FOR WARRIOR 1&2 (tinted)
5	RPWS1060	FRONT PLATE ASSEMBLY KIT (CLEAR DOME)
	RPWS1061	FRONT PLATE ASSEMBLY KIT (TINTED DOME)
6	RPWS1070	WARRIOR 1-4 FACE PLATE FASTENER KIT
		Not shown items
7	RWS2080	WARRIOR 2 & 4 PACKET KIT

WS4 -
Exploded Diagram



WS4 -
Replacement Parts List

	Part Number	Description
1	RPWS2010	WARRIOR 2 & 4 BASE ASSEMBLY
2	RPWS2020	WARRIOR 2 & 4 CARRIAGE ASSEMBLY KIT
		NTSC BOARD CAMERAS
3	RPWS3041F	WARRIOR 3 & 4 STANDARD RES, BLACK & WHITE, FIXED CAMERA KIT
	RPWS3041V	WARRIOR 3 & 4 STANDARD RES, BLACK & WHITE, VARIFOCAL CAMERA KIT
	RPWS3043F	WARRIOR 3 & 4 STANDARD RES, COLOR, FIXED CAMERA KIT
	RPWS3043V	WARRIOR 3 & 4 STANDARD RES, COLOR, VARIFOCAL CAMERA KIT
	RPWS3043A	WARRIOR 3 & 4 STANDARD RES, COLOR, AUTO-IRIS VARIFOCAL CAMERA KIT
	RPWS3045F	WARRIOR 3 & 4 HI-RES, COLOR, FIXED CAMERA KIT
	RPWS3045V	WARRIOR 3 & 4 HI-RES, COLOR, VARIFOCAL CAMERA KIT
	RPWS3045A	WARRIOR 3 & 4 HI-RES, COLOR, AUTO-IRIS VARIFOCAL CAMERA KIT
	RPWS3046A	WARRIOR 3 & 4 ULTRA HI-RES, COLOR, AUTO-IRIS VARIFOCAL CAMERA KIT
		PAL BOARD CAMERAS
	RPWS3041PF	WARRIOR 3 & 4 PAL STANDARD RES, BLACK & WHITE, FIXED CAMERA KIT
	RPWS3041PV	WARRIOR 3 & 4 PAL STANDARD RES, BLACK & WHITE, VARIFOCAL CAMERA KIT
	RPWS3043PF	WARRIOR 3 & 4 PAL STANDARD RES, COLOR, FIXED CAMERA KIT
	RPWS3043PV	WARRIOR 3 & 4 PAL STANDARD RES, COLOR, VARIFOCAL CAMERA KIT
	RPWS3043PA	WARRIOR 3 & 4 PAL STANDARD RES, COLOR, AUTO-IRIS VARIFOCAL CAMERA KIT
	RPWS3045PF	WARRIOR 3 & 4 PAL HI-RES, COLOR, FIXED CAMERA KIT
	RPWS3045PV	WARRIOR 3 & 4 PAL HI-RES, COLOR, VARIFOCAL CAMERA KIT
	RPWS3045PA	WARRIOR 3 & 4 PAL HI-RES, COLOR, AUTO-IRIS VARIFOCAL CAMERA KIT
	RPWS3046PA	WARRIOR 3 & 4 PAL ULTRA HI-RES, COLOR, AUTO-IRIS VARIFOCAL CAMERA KIT
4	WS3PS	WARRIOR 3 & 4 REPLACEMENT PAINT SHIELD
5	RPWS3060	REPLACEMENT WINDOW KIT
6	RPWS3070	WEDGE ASSEMBLY KIT
7	RPWS1070	WARRIOR 1-4 FACE PLATE FASTENER KIT
		Not shown items
8	RWS2080	WARRIOR 2 & 4 PACKET KIT

Product Registration/Warranty

Thank you for choosing Videolarm. We value your patronage and are solely committed to providing you with only the highest quality products available with unmatched customer service levels that are second-to-none in the security industry.

Should a problem arise, rest assure that Videolarm stands behind its products by offering some of the most impressive warranty plans available: ***3 Years*** on all Housings, Poles, Power Supples, and Accessories and ***5 Years*** on all camera systems (SView, QView, Warriors), and InfraRed Illuminators.

Register Your Products

Option 1: Online *Option 2:* Mail-In

Take a few moments and validate your purchase with our **Online Product Registration Form** at ***www.videolarm.com/productregistration.jsp*** or complete and mail-in the bottom portion of this flyer.

Register your recent Videolarm purchases and benefit from the following:

- Simple and Trouble-Free RMA process
- Added into customer database to receive product updates / news
- Eliminate the need to archive original purchase documents: Receipts, Purchase Orders, etc…

Cut at the dotted Line

Place in envelope, affix stamp and mail to: ***Videolarm ATTN: Warranty***
2525 Park Central Ave.
Decatur, GA 30035

Main Contact Info

First Name: _____ Last Name: _____

Professional Title: _____ Company: _____

Address 1: _____ Address 2: _____

City: _____ State / Province/Country: _____

Zip / Postal Code: _____ Phone Number: _____ E-mail Address: _____

Product Information

Please Circle One: Business Personal

Name & Location of Company / Store where Purchased: _____
(City, State, Country)

Videolarm Product ID _____ Product Description _____

Serial # _____
(Available only for Camera Systems, IR Illuminators, Wireless Devices)

PO# _____